

No. 671,218.

Patented Apr. 2, 1901.

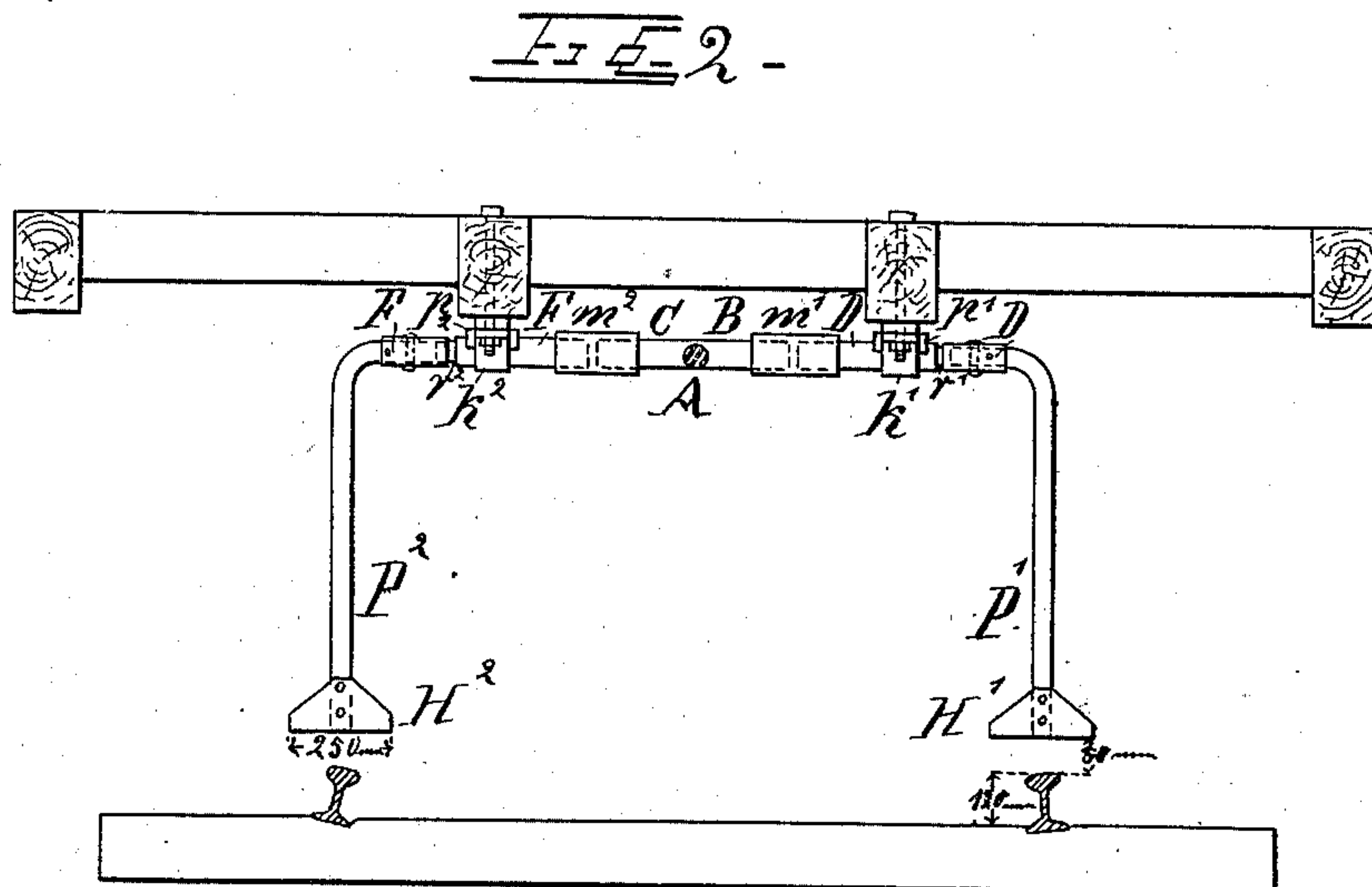
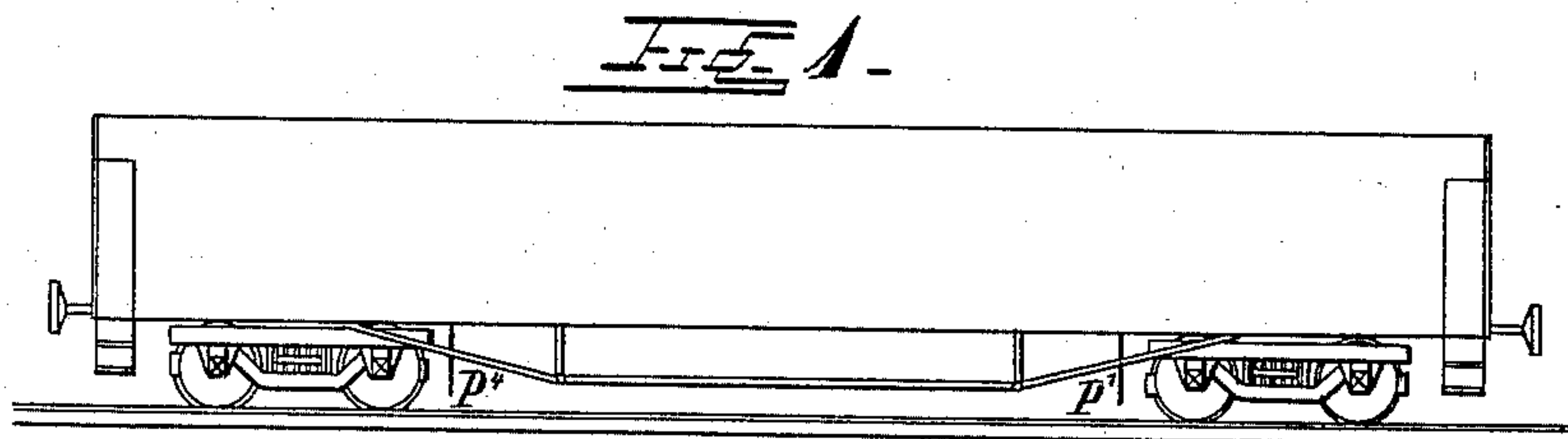
S. LAKERDA & L. NIKOLAJEFF.

INVENTOR: **W. L. AIRCRAFT.**
DEVICE FOR AUTOMATICALLY APPLYING AIR BRAKES OF RAILWAY TRAINS
ON DERAILMENT.

(No Model.)

(Application filed Apr. 5, 1900.)

2 Sheets—Sheet 1.



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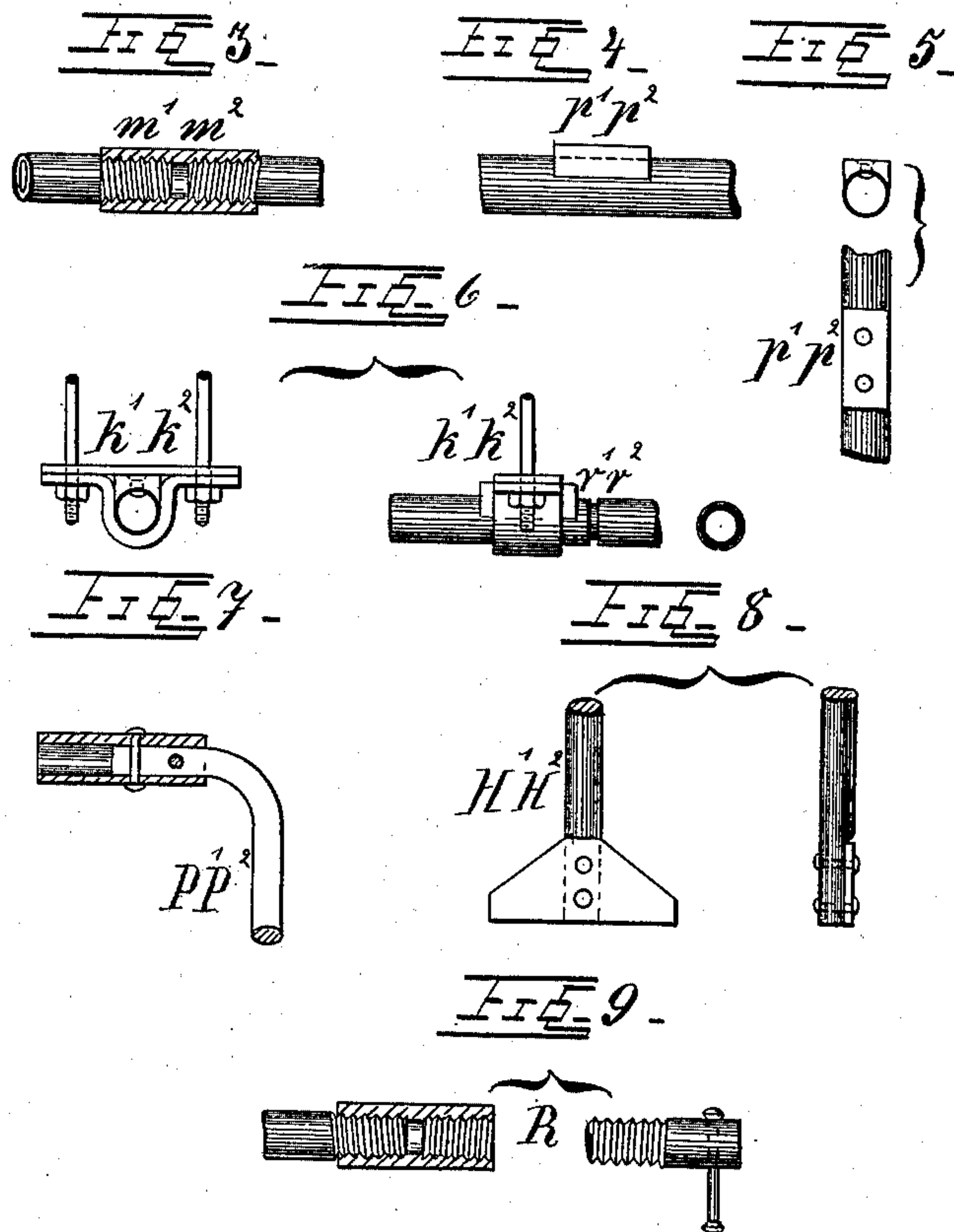
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DEVICE FOR AUTOMATICALLY APPLYING AIR BRAKES OF RAILWAY TRAINS
ON DERAILMENT.

(No Model.)

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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

SERGEI LAKERDA AND LEONID NIKOLAJEFF, OF ST. PETERSBURG, RUSSIA.

DEVICE FOR AUTOMATICALLY APPLYING AIR-BRAKES OF RAILWAY-TRAINS ON DERAILMENT.

SPECIFICATION forming part of Letters Patent No. 671,218, dated April 2, 1901.

Application filed April 5, 1900. Serial No. 11,681. (No model.)

To all whom it may concern:

Be it known that we, SERGEI LAKERDA and LEONID NIKOLAJEFF, subjects of the Czar of Russia, residing at St. Petersburg, in the Empire of Russia, have invented a certain new and useful Device for Automatically Applying the Air-Brakes of Railway-Trains on Derailment or the Like, of which the following is a specification.

The subject of the present invention is a device whereby on a railway-carriage leaving the track or on fracture of a spring, tire, or the like the air-brake is instantly applied automatically throughout the whole train, which is thus immediately stopped. This is done by means of branch pipes communicating with the main air-pipe and having attached to them downwardly-running rods provided at their lower extremities with broad iron plates or the like, which are ordinarily located somewhat above the heads of the rails. When the wheels of a carriage leave the track, the said plates are borne violently against the tread of the rails by reason of the weight of the carriage now coming upon the rods described. The result is that the branch pipes referred to are fractured, whereby the air in the main brake-pipe obtains an outlet, the brake being consequently applied. The train being thus stopped, the outlets may be closed with suitable plugs, the brake released, and the train run to the nearest station.

The new device is shown on the accompanying drawings, on which—

Figure 1 is a side elevation of a railway-wagon to the brake-pipe of which the new invention has been applied. Fig. 2 is a cross-sectional view, to a larger scale, showing the manner in which the device is secured below the wagon. Figs. 3 to 10 show detail views of the various parts to be hereinafter referred to.

A is the main pipe of an ordinary air-brake running below the wagon throughout its length. Branching from this pipe A two horizontal pipes B C, Fig. 2, are provided at each end of the wagon near the axles. The ends of these pipes B C, by means of screw-couplings $m' m''$, (shown in detail in Fig. 3,) are connected to other pipes D F, which are thus also in communication with the main brake-pipe A, Fig. 2. Two iron plates $p' p''$,

with brackets $k' k''$, are fastened to the pipes D F, whereby the latter are secured under the bed of the wagon and prevented from turning about their axes. The plates $p' p''$ and brackets $k' k''$ are shown in detail in the separate views, Figs. 4, 5, and 6. At a short distance from the brackets $k' k''$ grooves or notches $r' r''$ are provided in the pipes D F, so that in the event of these pipes being subjected to excessive strain the fracture will occur at the parts $r' r''$ thus weakened.

All couplings and connections must of course be absolutely air-tight, so that no leakage of air from the brake-pipe may occur, whereby the correct operation of the apparatus would be interfered with.

The end of each pipe D and F is provided with an internal thread in order to receive the screwed ends of a bent iron rod P' or P'' , (see detail view, Fig. 7,) which is then secured rigidly in place by riveting. These rods P' P'' run vertically downward over the rails and have riveted to them at their lower ends thick triangular plates $H' H''$. These plates may have a width of about ten inches and should stand some three inches above the tread of the rails. Fig. 8 shows one of these plates in face and edge view, respectively, attached to its rod.

Ordinarily when the wagon is running the plates $H' H''$ will be carried along free of the rails. In the event of derailment of the wagon, however, or fracture of a spring, a tire, or the like the plates will be pressed down directly upon the rails with a force equal to at least half the weight of the wagon. The result of this will be the immediate fracture of the pipes D F at the weakened parts $r' r''$. The air from the train-pipe is thus afforded an outlet here and the brakes on the whole of the wagons will accordingly be applied simultaneously. The plates $H' H''$ must necessarily bear down upon the rails when the wagon leaves the metals, since the rails have a depth of about four and one-half to five inches, while the distance of the plates $H' H''$ from the tread of the rails is only about three inches when the wagon is running on the track. There are four rods $P' P'' P''' P''''$ provided for each wagon. When now a train has been stopped, as above described,

through the fracture of one or more pipes D F, these must be unscrewed at the couplings $m' m''$ and iron plugs R inserted in the ends of the pipes B C. Figs. 9 and 10 show such
5 a plug and coupling for closing the pipes B C. A sufficient number of these plugs must naturally be carried in each train. The plug having been inserted and the air-outlet thus stopped, the train can be run to the nearest
10 station.

It will be obvious that without in any way departing from the essential feature of the invention the arrangement of the parts and their precise construction may be considerably varied. The details of the couplings,
15 the form of the plates H' H'', the shape of the plug R, and the like shown on the drawings must not therefore be regarded as more than examples indicating one manner in which the
20 parts may be constructed.

Having thus described our invention, what

we claim as new, and desire to secure by Letters Patent, is—

The combination with the main air-pipe of a railway-brake, of pipes B C branching from
25 said main pipe, of other pipes D F having grooves $r' r''$, of couplings $m' m''$ connecting said pipes D F B C, of supporting means $p', p'', K' K''$ for said pipes, of rods P' P'' screwing into said pipes D F, of plates H' H'' secured to said rods, and of suitable means R
30 for plugging said pipes B C, all substantially as and for the purposes described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.
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SERGEI LAKERDA.
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Witnesses:

ANATOL AGLITZKY,
JOHANNES RUSSURER.